United States
Department of
Agriculture

Natural
Resources
Conservation
Service

Idaho
Basin Outlook Report
March 1, 1995

Basin Outlook Reports
and
Federal - State - Private
Cooperative Snow Surveys

For more water supply and resource management information, contact:

Your local Natural Resources Conservation Service Office
or
Natural Resources Conservation Service
Snow Surveys
3244 Elder Street, Room 124
Boise, ID 83705-4711
(208) 334-1614

How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

IDAHO WATER SUPPLY OUTLOOK REPORT

MARCH 1, 1995

SUMMARY

Warm and dry conditions dominated Idaho's weather during February, but the outlook still looks promising for adequate water supplies this summer. Snowpack figures dropped about twenty percentage points during the month, bringing the northern and southern fringes of the state to slightly below average conditions. Streamflow forecasts reflect this change and call for near to slightly below average runoff for most watersheds. A cool, wet March would help eliminate any potential concerns over Idaho's water supplies for 1995.

SNOWPACK

Warm temperatures statewide and a lack of precipitation in the south during February caused snowpacks to drop about twenty percentage points from last month's figures. Currently, snowpacks range from 80 to 90% of average in northern Idaho and along the southern edge of the state, 90 to 110% in the central mountains, and 90 to 100% in the upper Snake basin. The Henrys Fork continues to lead the pack in Idaho with 122% of average. Another month of good snowfall and a return to more seasonal temperatures would help ensure adequate water supplies this summer.

PRECIPITATION

February brought a reversal to the precipitation pattern of the previous month: Northern Idaho received essentially normal precipitation while the central and southern mountains experienced the driest month of the water year. Intense rainfall during the period of February 17 - 21 brought flooding to the Idaho Panhandle; SNOTEL sites in the region reported as much as 2.5 inches of rain in one day. The central mountains and the upper Snake basin received about two-thirds of the normal February complement of moisture, while basins south of the Snake reported a paltry 39% of average. Temperatures were well above normal statewide during the month, with record high daily temperatures set at several locations.

RESERVOIRS

Reservoir storage improved significantly during February, thanks to heavy rainfall in the North and warm temperatures in the south. Inflow to Coeur d'Alene Lake was over a one million acre-feet in February -- more than three times the normal amount! The Payette River basin reports normal storage for this time of year; the Boise basin reports slightly over half of normal. The upper Snake system is over half full now, or more than 75% of average. Smaller reservoirs across the state report lower values: Magic is only 8% of capacity, Little Wood is 20% full, and Oakley reports 19% of capacity. As a result of the low carryover storage in Bear Lake this year, water supplies could be tight in this area.

Note: NRCS reports reservoir information in terms of usable volumes, which includes both active, inactive, and in some cases dead storage. Other operators may report reservoir contents in different terms. For additional information, see the reservoir definitions in the back of this report.

STREAMFLOW

Warm temperatures statewide and intense rainfall in the North generated a rise in most streams during February. The Coeur d'Alene River exceeded flood stage on February 19, yielding over one million acre feet of runoff during the month! Almost all north Idaho streams had more than twice their normal February runoff. Central mountain streams had their first above normal flow volumes of the water year, ranging from 120 to 150% of normal. Only the higher elevation watersheds of eastern Idaho and the upper Snake avoided the early low elevation snowmelt. Forecasts have dropped 5 to 15 percentage points statewide, reflecting the early runoff and the declines in snowpack. Current forecasts call for near average flows for central mountain streams, with below normal volumes expected in northern and southern Idaho. Conditions look promising for the Snake basin: the Snake at Heise is expected to yield 98% of average while the Henrys Fork is forecast at 112%.

RECREATION OUTLOOK

Idaho's healthy mountain snowpack is good news for boaters this year. The Middle Fork Salmon is expected to peak between 6.8 and 8.0 feet, and should remain above 2 feet through July. The Main Salmon could see flows above 20,000 cfs for a month and a half during the spring runoff season. The southwestern desert rivers (Owyhee, Jarbidge, and Bruneau) should have an excellent boating season. The Bruneau is expected to peak between 1600 and 3500 cfs, and should remain above 1000 cfs for 35 to 55 days. The Owyhee should remain above 2000 cfs for 40 to 55 days. Unusual weather during the spring snowmelt period could alter these estimates, of course. Most major reservoirs are expected to fill, allowing for an adequate reservoir recreation season.

IDAHO SURFACE WATER SUPPLY INDEX

The Surface Water Supply Index (SWSI) is a predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.1 (abundant supply) to -4.1 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences.

SWSI values are published January through May, and provide a more comprehensive outlook of water availability than either streamflow forecasts or reservoir storage figures alone. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been established for most basins to indicate the potential for agricultural water shortages.

The following agencies and cooperators provide assistance in the preparation of the Surface Water Supply Index for Idaho:

US Department of Agriculture, Natural Resources Conservation Service
US Department of Interior, Bureau of Reclamation
US Department of Commerce, National Weather Service
US Army Corps of Engineers
Idaho Department of Water Resources
Idaho Water Users Association
PaciCorp

IDAHO SURFACE WATER SUPPLY INDEX (SWSI)
As of March 1, 1995

Basin or Region	SWSI	Most Recent Year With Similar SWSI Value	Agricultural Water Supply Shortages May Occur When SWSI Is Less Than:
Panhandle	-2.5	1980	NA
Clearwater	-1.4	1986	NA
Salmon	-0.7	1981/85	NA
Weiser	-1.3	1985	NA
Payette	0.8	1993	NA
Boise	-0.5	1993/81	-2.6
Big Wood	-0.3	1993/85	-1.4
Little Wood	1.1	1993	-2.1
Big Lost	0.8	1981	-0.8
Little Lost	0.2	1980	0.0
Henrys Fork	0.2	1985/89	-3.3
Snake (American Falls)	0.1	1985	-2.0
Oakley	-0.1	1993/82	0.0
Salmon Falls	0.1	1989	0.0
Bruneau	-0.7	1985	NA
Owyhee	-0.5	1990	NA
Bear River	-3.8	1994	-3.8

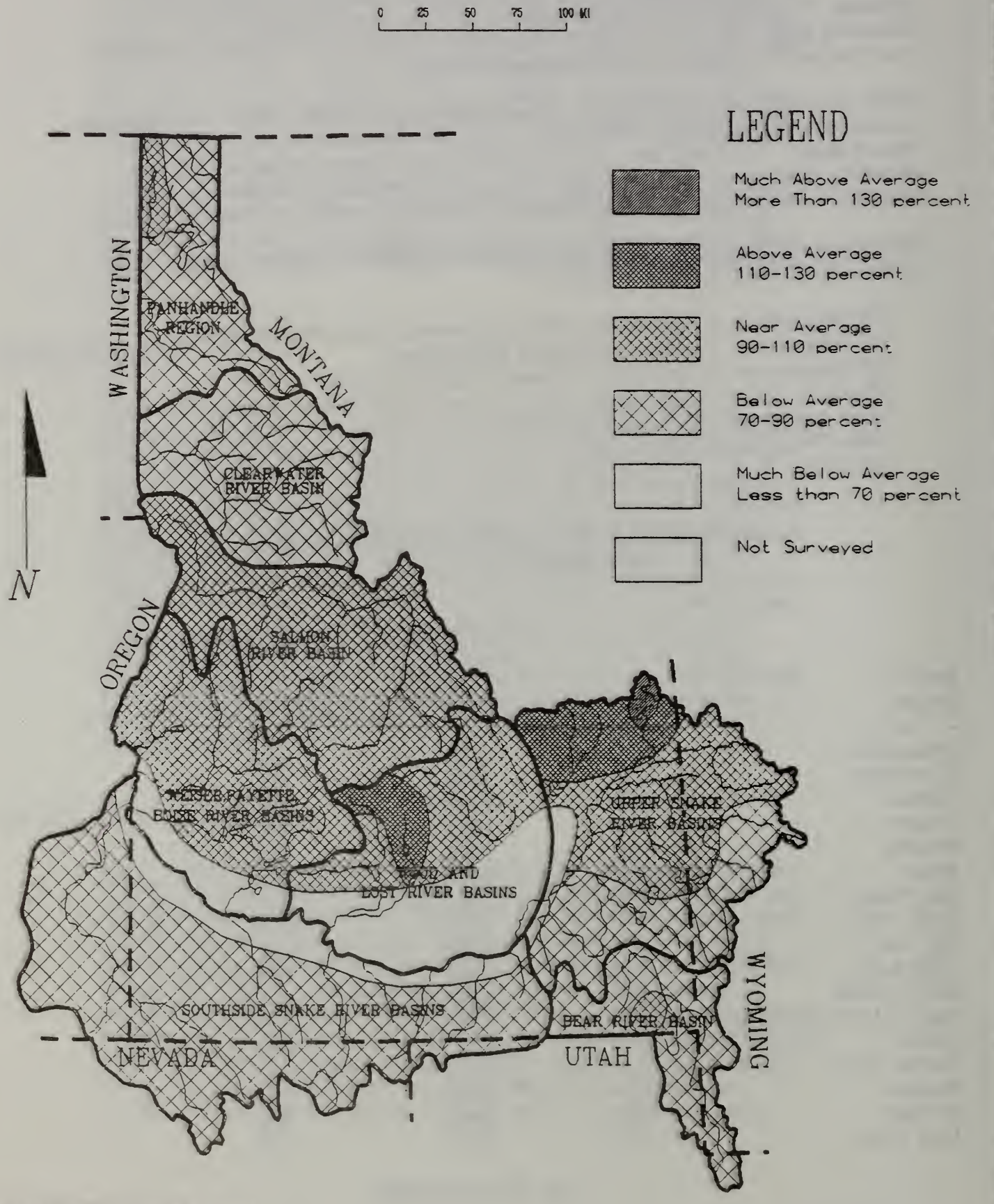
NA - Not Applicable

SWSI Scale

1.5 to 4.1	Above Normal Supply
-1.5 to 1.5	Near Normal Supply
-3.0 to -1.5	Below Normal Supply
-4.1 to -3.0	Very Short Supply

IDAHO MOUNTAIN SNOWPACK

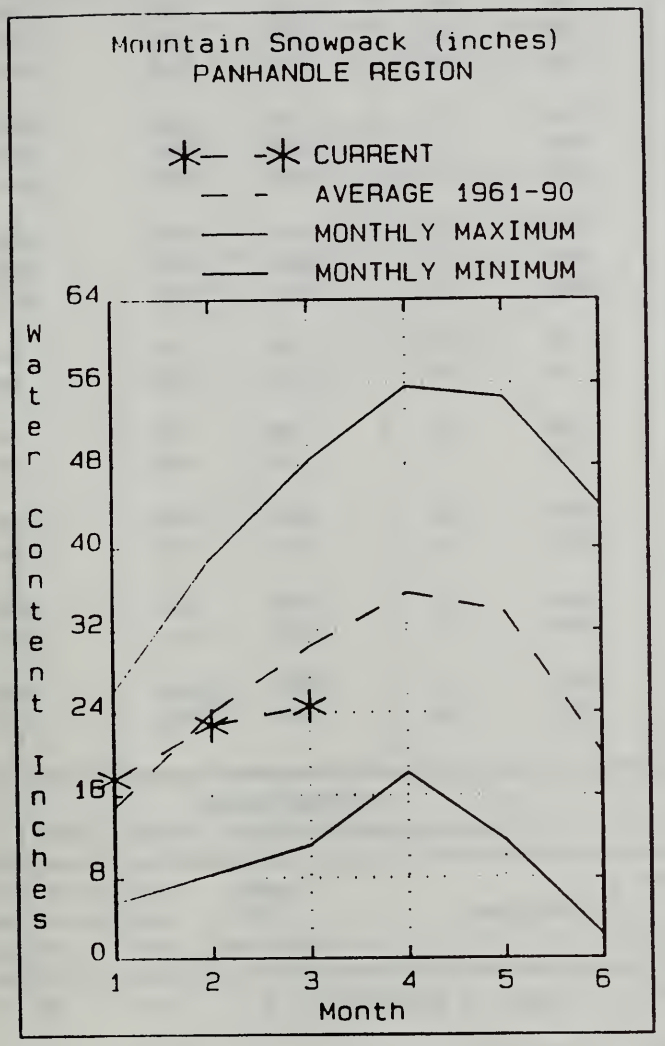
MARCH 1, 1995

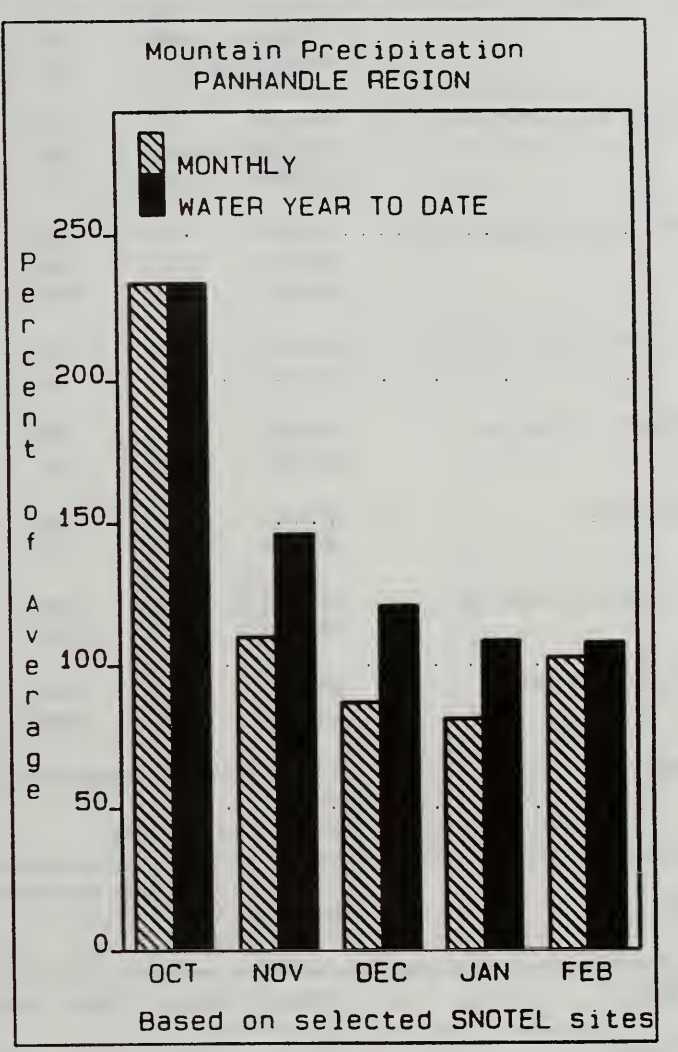


NATURAL RESOURCES CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE

PANHANDLE REGION

MARCH 1, 1995





WATER SUPPLY OUTLOOK

Warm and wet weather in Idaho's Panhandle generated high flows in most streams. Precipitation was 103% of average in the area -- the only part of the state to receive above average moisture for the month. Warm temperatures and intense rainfall melted some of the low elevation snow and brought flooding to some low lying areas. Inflow to Coeur d'Alene Lake was 348% of average during February and brought Coeur d'Alene Lake three feet above its normal summer level! Currently, snowpacks range from 75 to 90% of average. Coeur d'Alene Lake is now in surcharge (above its normal summer capacity) while Pend Oreille Lake is 69% of capacity. Streamflow forecasts call for below normal runoff ranging from 80 to 89% of average. Overall, the water supply this year should be similar to 1980, with no significant shortages expected.

PANHANDLE REGION
Streamflow Forecasts - March 1, 1995

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
KOOTENAI at Leonia (1,2)	APR-JUN	3760	4580	4960	87	5340	6160	5701
	APR-JUL	4790	5820	6290	87	6760	7790	7199
	APR-SEP	5510	6690	7230	87	7770	8950	8275
CLARK FK at Whitehorse Rpds (1,2)	APR-JUN	4700	6380	7140	71	7900	9580	10050
	APR-JUL	5470	7440	8330	71	9220	11200	11730
	APR-SEP	6020	8190	9170	71	10200	12300	12910
PEND OREILLE Lake Inflow (1,2)	APR-JUN	5400	7390	8300	73	9210	11200	11390
	APR-JUL	6540	8650	9610	73	10600	12700	13150
	APR-SEP	6750	9450	10500	73	11600	13500	14370
PRIEST nr Priest River (1,2)	APR-JUL	510	655	725	89	795	940	814
	APR-SEP	545	705	775	89	845	1000	868
COEUR D'ALENE at Enaville	APR-JUL	445	550	622	81	695	800	770
	APR-SEP	370	585	659	81	735	940	809
ST.JOE at Calder	APR-JUL	760	885	970	83	1050	1180	1169
	APR-SEP	780	945	1030	83	1120	1300	1237
SPOKANE near Post Falls (2)	APR-JUL	1580	1920	2160	82	2400	2740	2633
	APR-SEP	1470	1980	2220	81	2460	3000	2730
SPOKANE at Long Lake	APR-JUL	1820	2190	2441	83	2690	3060	2936
	APR-SEP	1970	2360	2616	83	2880	3260	3159

PANHANDLE REGION
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNGRY HORSE	3451.0	1721.0	793.2	2205.0
FLATHEAD LAKE	1791.0	749.2	743.2	881.0
NOXON RAPIDS	335.0	321.2	326.7	298.1
PEND OREILLE	1561.3	1070.6	545.3	831.8
COEUR D'ALENE	238.5	348.5	35.5	149.1
PRIEST LAKE	119.3	72.0	52.5	54.1

PANHANDLE REGION
Watershed Snowpack Analysis - March 1, 1995

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	34	114	89
Moyie River	3	118	77
Priest River	4	117	91
Pend Oreille River	97	113	83
Rathdrum Creek	5	109	97
Hayden Lake	2	115	97
Coeur d'Alene River	9	108	75
St. Joe River	3	126	83
Spokane River	18	112	82
Palouse River	2	96	79

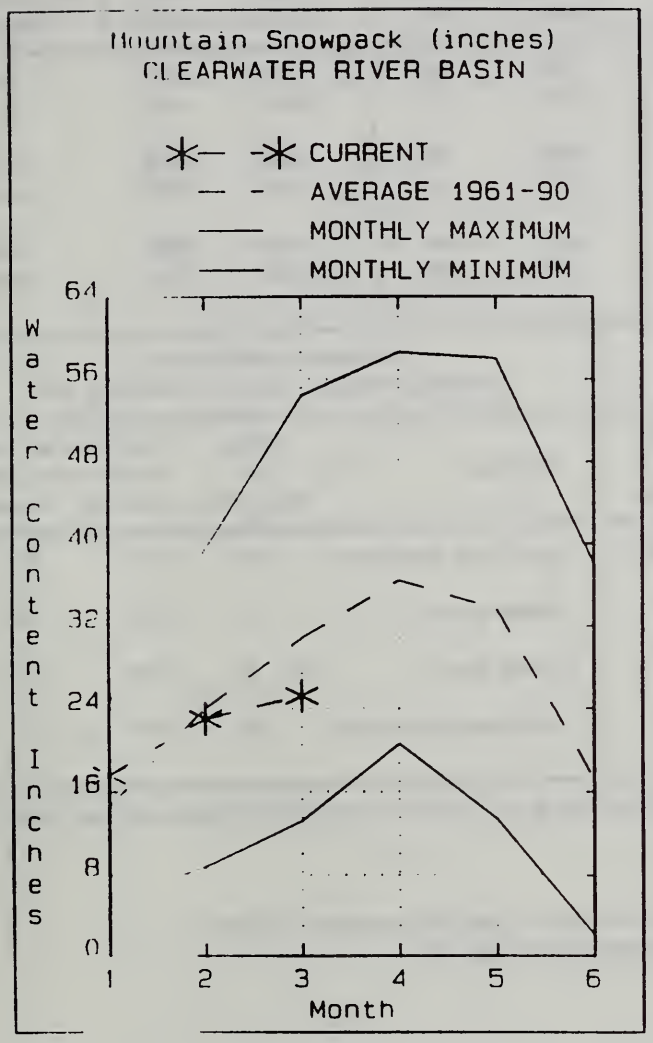
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

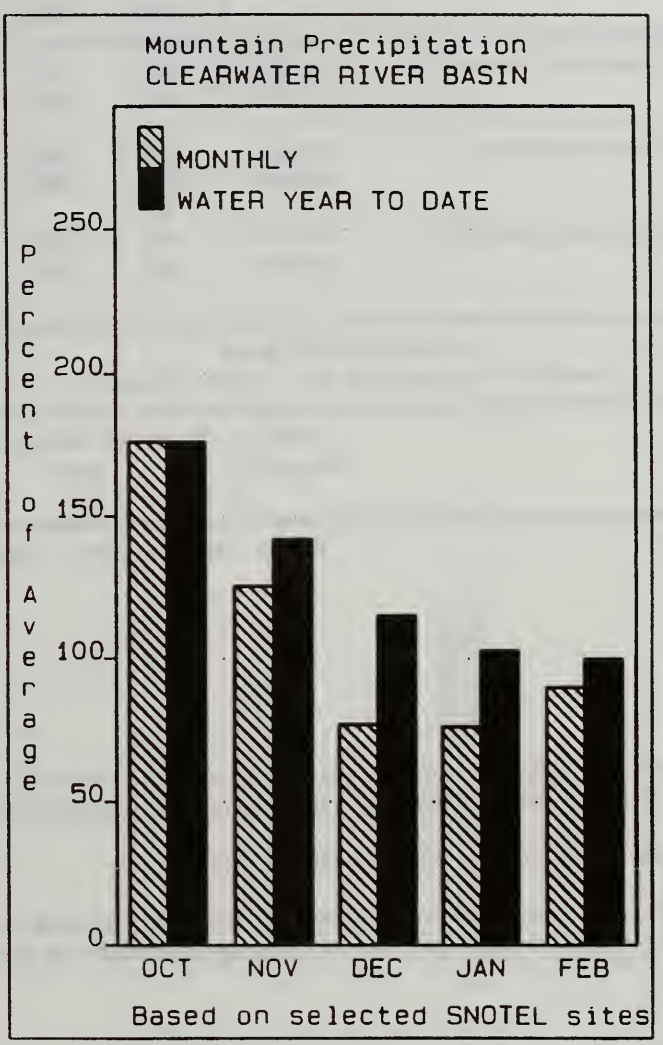
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

CLEARWATER RIVER BASIN

MARCH 1, 1995





WATER SUPPLY OUTLOOK

February precipitation in the Clearwater basin was slightly above normal in the north but only half of normal in the southern part of the basin. Snowpacks decreased 10-20 percentage points from last month and now range from 75 to 85% of average. Rain and low elevation snow melt brought Dworshak Reservoir up 560,000 acre-feet to 75% of capacity, above average for this time of year. Streamflow forecasts call for around 80% of average runoff in the basin. This year's total water supply (reservoir and streamflow) should be similar to the 1986 season, with no significant shortages expected.

CLEARWATER RIVER BASIN
Streamflow Forecasts - March 1, 1995

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
DWORSHAK Reservoir Inflow (2)	APR-JUL	1240	1970	2160	80	2350	3070	2692
	APR-SEP	1740	2050	2250	79	2450	2760	2866
CLEARWATER at Orofino (1)	APR-JUL	2100	3170	3660	78	4150	5220	4718
	APR-SEP	2250	3380	3890	78	4400	5530	4976
CLEARWATER at Spalding (1,2)	APR-JUL	3680	5330	6080	80	6830	8480	7618
	APR-SEP	3930	5680	6470	80	7260	9010	8052

CLEARWATER RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3459.0	2586.9	2512.0	2084.1

CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - March 1, 1995

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	11	127	82
Lochsa River	4	125	78
Selway River	6	109	78
Clearwater Basin Total	20	121	81

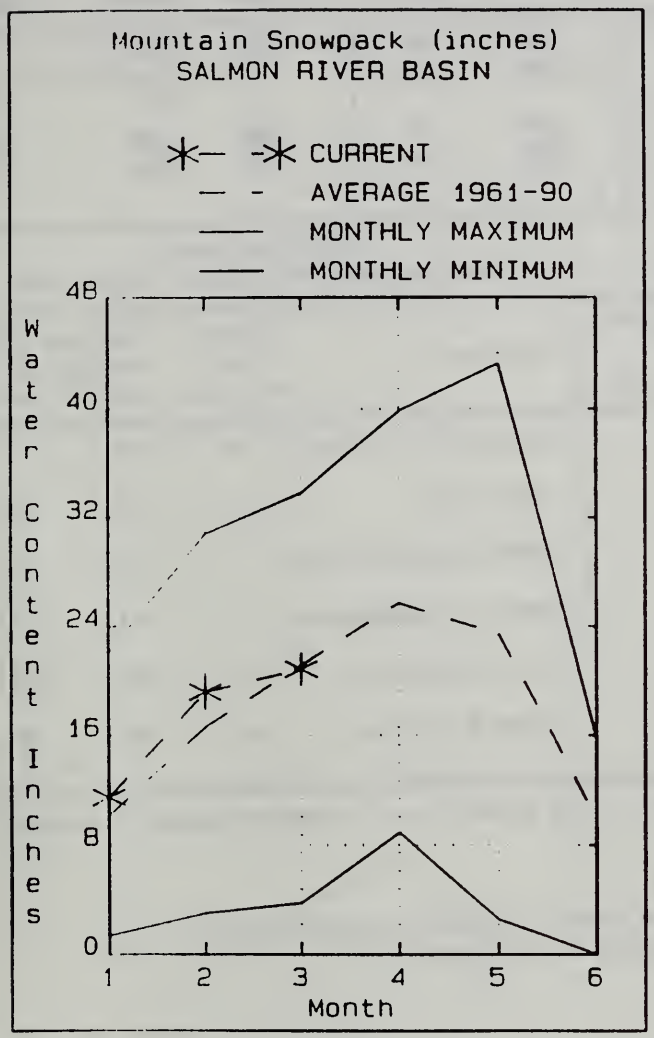
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

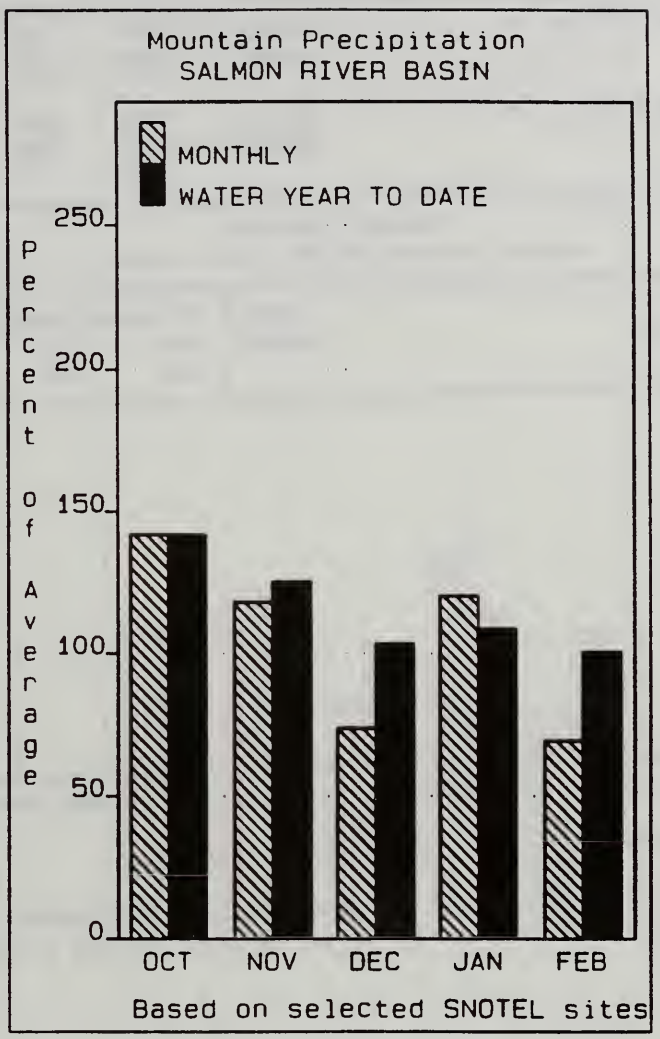
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

SALMON RIVER BASIN

MARCH 1, 1995





WATER SUPPLY OUTLOOK

Mountain precipitation during February was 70% of average, bringing the water year total to normal levels. Because of the dry conditions, snowpack percentages dropped 10-20 percentage points from last month and are now near normal across the basin. Streamflow forecasts call for 98% of average for the Salmon River at Salmon and 90% of average at White Bird. River runners and other water users can expect good flows this summer, similar to conditions in 1985.

SALMON RIVER BASIN
Streamflow Forecasts - March 1, 1995

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SALMON at Salmon (1)	APR-JUL	510	745	850	98	955	1190	869
	APR-SEP	595	870	995	98	1120	1400	1019
SALMON at White Bird (1)	APR-JUL	3610	4820	5370	90	5920	7130	5956
	APR-SEP	4000	5340	5950	90	6560	7900	6602

SALMON RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SALMON RIVER BASIN
Watershed Snowpack Analysis - March 1, 1995

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	10	164	98
Lemhi River	8	132	99
Middle Fork Salmon River	3	162	97
South Fork Salmon River	3	153	94
Little Salmon River	4	136	102
Salmon Basin Total	28	144	96

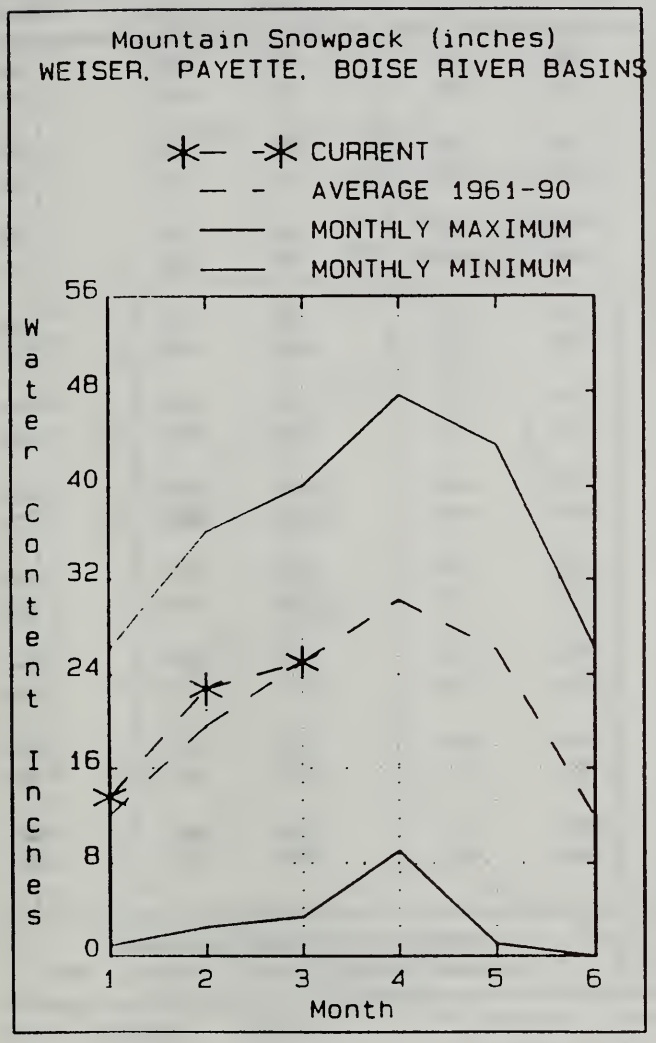
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

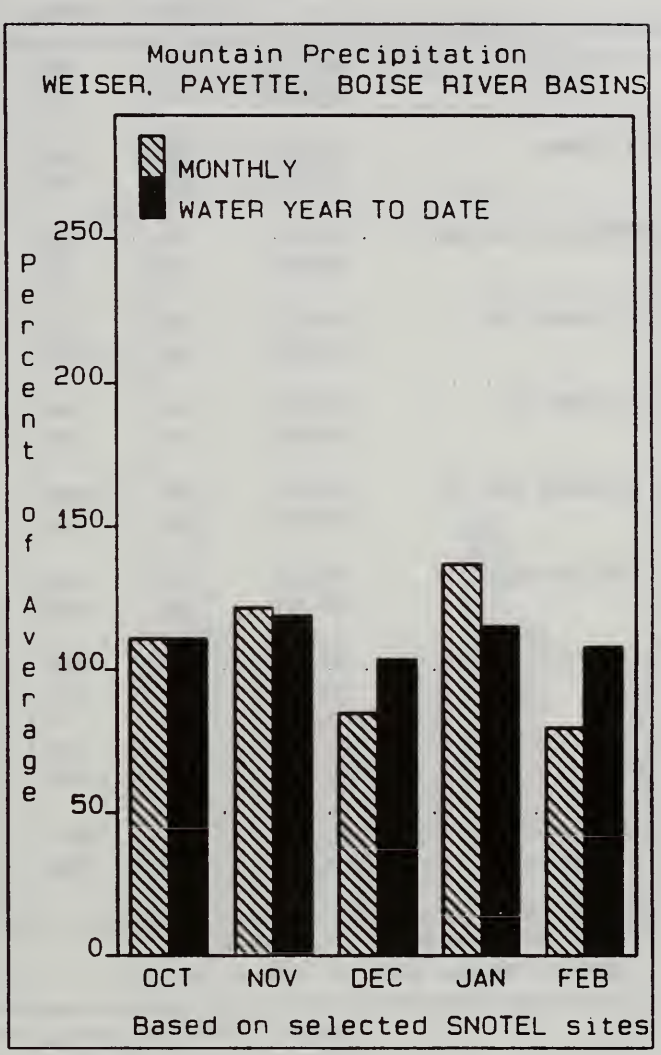
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

WEISER, PAYETTE, BOISE RIVER BASINS

MARCH 1, 1995





WATER SUPPLY OUTLOOK

February brought warm and dry conditions to the west central mountains. Some of the low elevation snowpack melted during the month, but the high elevation snowpack is not melting yet. Snowpack percentages decreased about 15 percentage points from last month and now range from 95 to 110% of average. Reservoir storage in the Boise basin is 35% of capacity (about half of average) while the Payette basin storage is 55% of capacity -- about normal for this time of year. Streamflow forecasts call for near normal runoff in these basins. Current projections indicate the Boise basin reservoirs will most likely fill, depending upon spring weather conditions. In spite of the low reservoir storage in the Boise basin, irrigation supplies are expected to be adequate this year, similar to 1993.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - March 1, 1995

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WEISER nr Weiser (1)	APR-JUL	138	285	350	91	415	560	386
	APR-SEP	148	305	375	90	445	600	415
SF PAYETTE at Lowman	APR-JUL	400	445	476	110	505	555	432
	APR-SEP	450	500	536	110	570	620	488
DEADWOOD RESERVOIR Inflow (2)	APR-JUL	105	129	138	102	148	169	135
	APR-SEP	118	133	143	100	153	168	143
NF PAYETTE nr Cascade (2)	APR-JUL	450	515	559	113	605	670	496
	APR-SEP	470	540	590	111	640	710	533
NF PAYETTE nr Banks (2)	APR-JUL	530	620	685	113	750	840	607
	APR-SEP	600	700	765	111	835	930	690
PAYETTE nr Horseshoe Bend (2)	APR-JUL	1460	1640	1770	109	1900	2080	1618
	APR-SEP	1490	1780	1920	109	2060	2330	1755
BOISE near Twin Springs	APR-JUL	490	580	625	99	670	755	631
	APR-SEP	565	630	676	98	720	790	686
SF BOISE at Anderson Rnch Dm (1,2)	APR-JUL	395	495	540	99	585	685	544
	APR-SEP	405	510	560	96	610	715	582
MORES CK nr Arrowrock Dam	APR-JUL	84	104	118	91	132	152	129
	APR-SEP	88	108	123	91	137	157	134
BOISE nr Boise (1,2)	APR-JUL	1040	1300	1410	99	1520	1780	1421
	APR-SEP	1130	1380	1490	97	1600	1850	1535

WEISER, PAYETTE, BOISE RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MANN CREEK	11.1	9.4	4.4	6.8
CASCADE	703.2	415.5	463.3	393.8
DEADWOOD	161.9	58.1	102.0	84.5
ANDERSON RANCH	464.2	66.8	329.4	282.1
ARROWROCK	286.6	221.2	224.9	234.8
LUCKY PEAK	293.2	80.4	110.0	122.5
LAKE LOWELL (DEER FLAT)	177.1	57.4	81.2	140.6

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - March 1, 1995

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	2	136	113
Weiser River	5	137	109
North Fork Payette	8	131	96
South Fork Payette	5	147	95
Payette Basin Total	14	134	96
Middle & North Fork Boise	6	151	102
South Fork Boise River	9	154	100
Mores Creek	5	105	89
Boise Basin Total	16	133	96
Canyon Creek	2	118	87

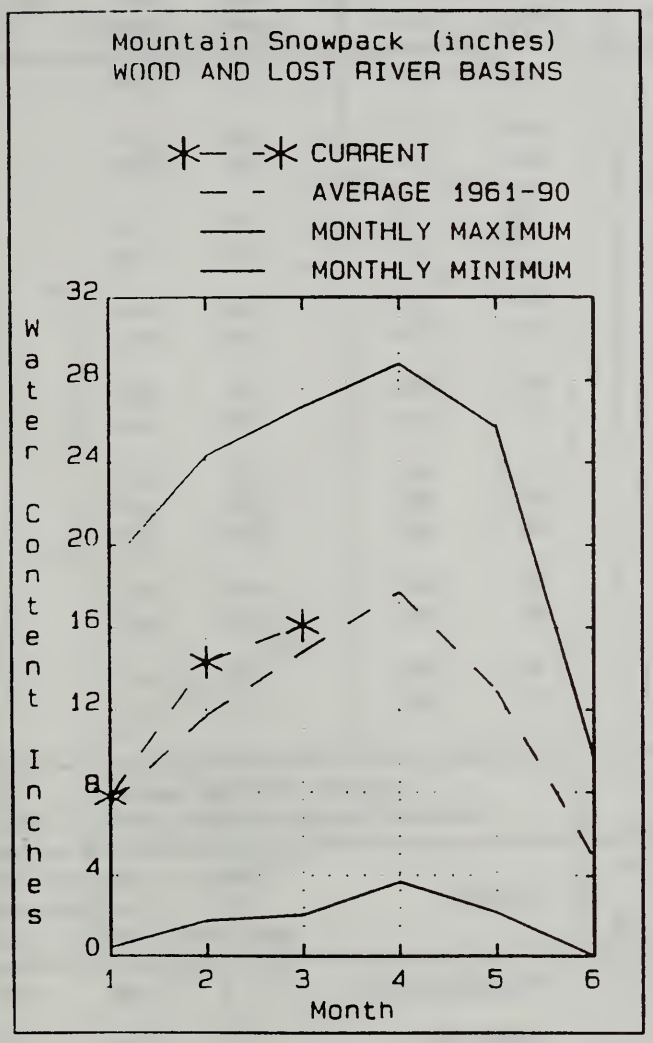
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

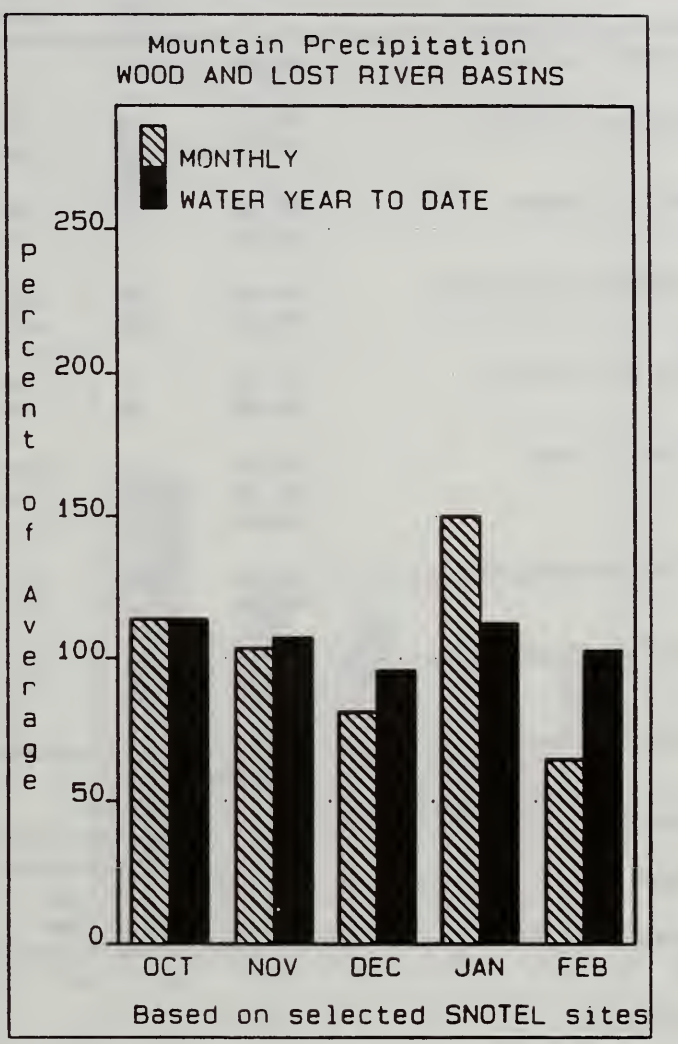
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow

WOOD and LOST RIVER BASINS

MARCH 1, 1995





WATER SUPPLY OUTLOOK

After January's heavy precipitation, February was disappointing at only 65% of average. The water year total now stands at 103% of average. Snowpack percentages dropped about 15 percentage points from last month and now range from near normal in Camas Creek and the Little Lost basins to 115% of average in the Little Wood. Reservoir storage remains very low with Magic reporting only 8% of capacity, Little Wood at 20% and Mackay at 49% of capacity. Streamflow forecasts decreased from last month and call for 95% to 115% of average flows. In spite of the low reservoir storage, the Surface Water Supply Index (SWSI) indicates water supplies should be adequate in the Wood and Lost river basins this year.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - March 1, 1995

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BIG WOOD AT HAILEY (1)	APR-SEP	215		320	112		430	286
BIG WOOD nr Bellevue	APR-JUL	129	172	201	110	230	275	183
	APR-SEP	140	186	217	110	250	295	197
CAMAS CK nr Blaine	APR-JUL	51	80	99	97	118	146	102
	APR-SEP	47	77	97	94	118	148	103
BIG WOOD blw Magic Dam (2)	APR-JUL	205	275	318	108	365	430	294
	APR-SEP	225	295	340	110	390	460	309
LITTLE WOOD nr Carey	APR-JUL	75	93	105	114	117	135	92
	APR-SEP	84	101	114	115	127	144	99
BIG LOST at Howell	APR-JUN	104	126	141	100	157	179	141
	APR-JUL	127	159	182	100	205	235	181
	APR-SEP	145	182	207	100	230	270	206
BIG LOST blw Mackay Reservoir (2)	APR-JUL	118	145	163	109	181	205	150
	APR-SEP	144	174	194	107	215	245	182
LITTLE LOST blw Wet Creek	APR-JUL	25	29	32	104	35	40	31
	APR-SEP	32	38	42	108	46	52	39

WOOD AND LOST RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MAGIC	191.5	15.7	85.3	102.4
LITTLE WOOD	30.0	6.1	25.9	17.6
MACKAY	44.4	21.7	33.0	32.6

WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - March 1, 1995

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
Big Wood ab Magic	8	189	110
Camas Creek	5	152	103
Big Wood Basin Total	13	177	108
Little Wood River	4	180	115
Fish Creek	3	201	107
Big Lost River	7	191	107
Little Lost River	4	158	102

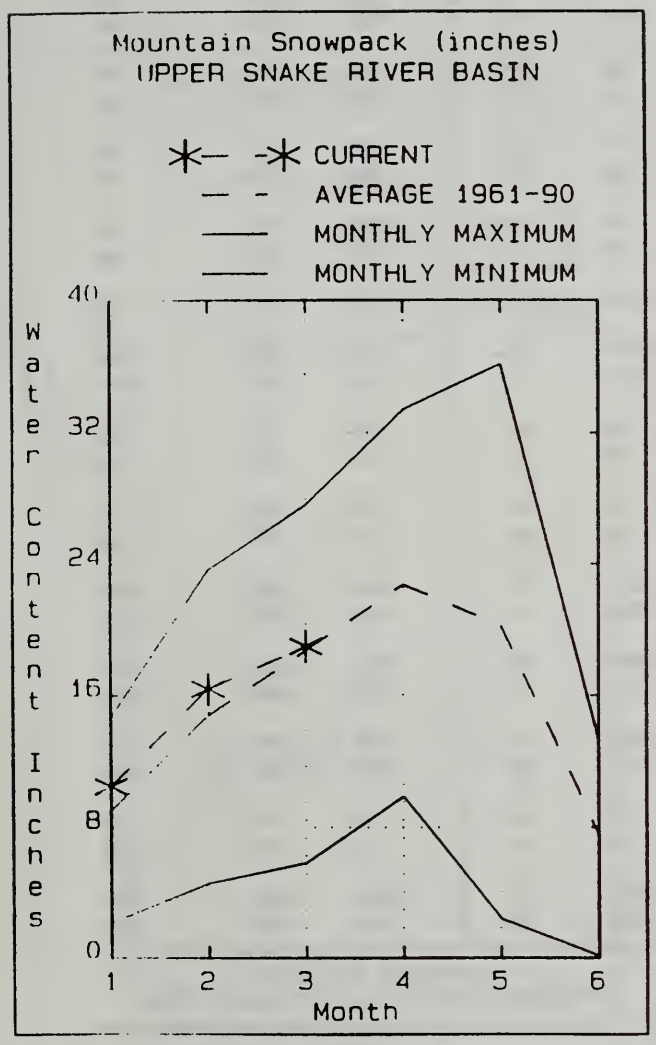
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

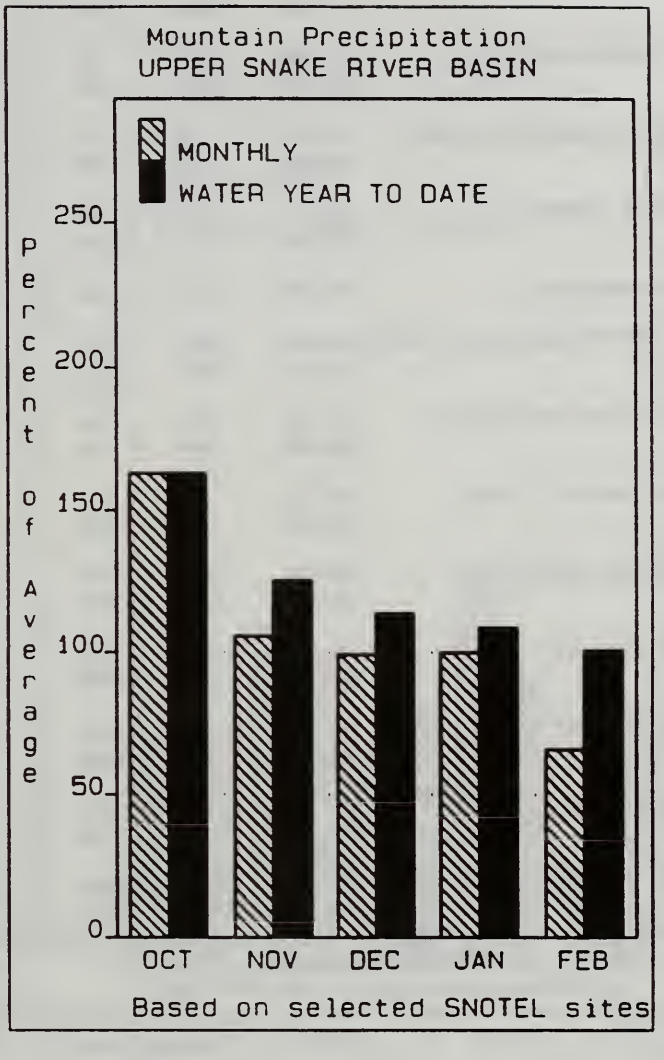
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

UPPER SNAKE RIVER BASIN

MARCH 1, 1995





WATER SUPPLY OUTLOOK

February precipitation across the upper Snake area ranged from 30% of average near Pocatello to 80% in eastern Wyoming. Precipitation for the water year dropped to 101% of average. Snowpack percentages dropped 20 percentage points in the Henrys Fork/Teton basins and 5 points in the Snake above Palisades. Snowpacks currently range from 74% of average in the Hoback River in Wyoming to 122% in the Henrys Fork. Reservoir storage for the eight major reservoirs in the basin is 55% of capacity, 77% of average. Streamflow forecasts call for 115% of average for the Henrys Fork and 103% of average for the Snake River at Heise. Current projections call for adequate water supplies for most users in the area.

UPPER SNAKE RIVER BASIN

Streamflow Forecasts - March 1, 1995

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
HENRYS FORK nr Ashton (2)	APR-JUL	540	595	630	116	665	720	544
	APR-SEP	715	775	820	112	865	925	730
HENRYS FORK nr Rexburg (2)	APR-JUL	1190	1320	1410	115	1500	1630	1228
	APR-SEP	1490	1630	1730	112	1830	1970	1551
FALLS RIVER nr Squirrel (2)	APR-JUL	325	375	395	109	415	465	364
	APR-SEP	405	440	462	107	485	520	432
TETON abv S Leigh Ck nr Driggs	APR-JUL	133	156	172	112	188	210	153
	APR-SEP	178	205	224	113	245	270	199
TETON nr St. Anthony (2)	APR-JUL	345	395	430	115	465	515	375
	APR-SEP	440	475	515	113	555	595	454
SNAKE nr Moran (1,2)	APR-SEP	730	800	855	98	910	980	869
SNAKE R abv Palisades Rsvr nr Alpine	APR-JUL	2030	2260	2414	106	2570	2800	2286
	APR-SEP	2190	2460	2641	100	2830	3100	2647
GREYS R abv Palisades Reservoir	APR-JUL	275	315	345	104	375	415	333
	APR-SEP	320	365	400	103	435	480	388
SALT abv Reservoir nr Etna	APR-JUL	240	300	340	106	380	440	320
	APR-SEP	310	375	420	105	465	530	400
PALISADES Rsvr Inflow (adj)	APR-JUL	2780	3100	3320	103	3540	3860	3225
	APR-SEP	2820	3460	3700	98	3940	4590	3762
SNAKE nr Heise (2)	APR-JUL	2950	3310	3550	103	3790	4150	3451
	APR-SEP	3040	3690	3970	98	4250	4900	4048
SNAKE nr Blackfoot (2)	APR-JUL	3770	4310	4670	105	5030	5570	4444
	APR-SEP	4740	5330	5727	104	6120	6710	5482
PORTNEUF at Topaz	MAR-JUL	63	73	80	93	87	97	86
	MAR-SEP	78	90	98	92	106	118	107
AMERICAN FALLS RESV INFLOW	APR-JUL	1930	2730	3130	102	3530	4320	3066
	APR-SEP	2280	2950	3400	103	3850	4520	3303

UPPER SNAKE RIVER BASIN

Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HENRYS LAKE	90.4	76.9	87.1	79.4
ISLAND PARK	135.2	93.7	122.7	110.1
GRASSY LAKE	15.2	12.5	13.6	11.0
JACKSON LAKE	847.0	401.6	627.5	481.0
PALISADES	1400.0	515.9	1337.0	1063.1
RIRIE	80.5	25.0	44.8	41.7
BLACKFOOT	348.7	114.8	196.0	242.1
AMERICAN FALLS	1672.6	1290.1	1576.8	1277.2

UPPER SNAKE RIVER BASIN

Watershed Snowpack Analysis - March 1, 1995

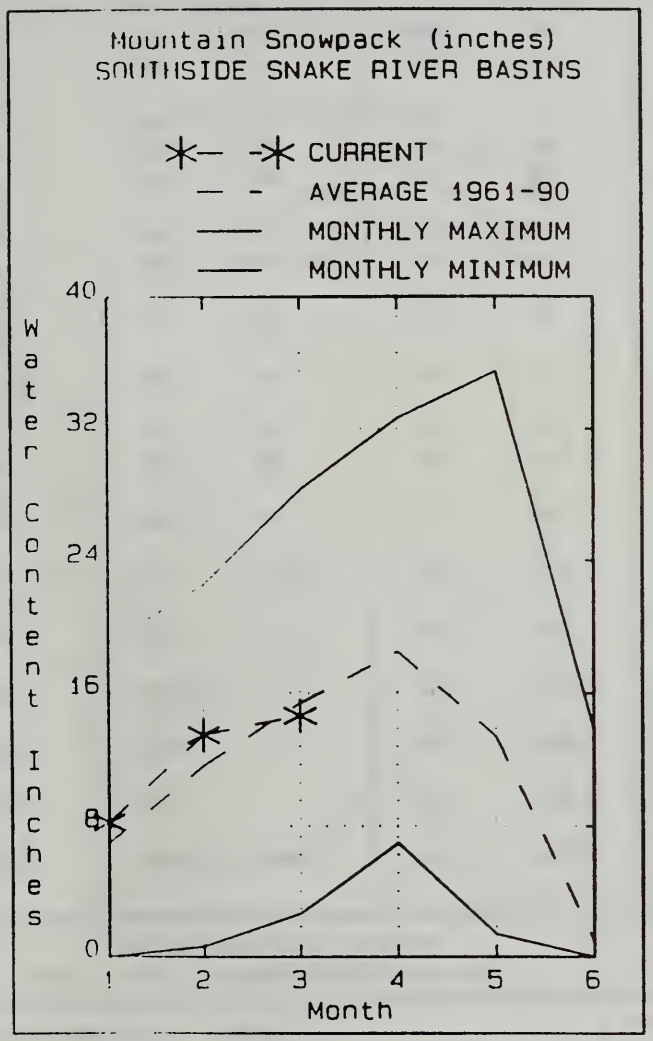
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Camas-Beaver Creeks	4	205	129
Henrys Fork River	12	158	122
Teton River	8	126	102
Snake above Jackson Lake	13	137	99
Gros Ventre River	3	123	85
Hoback River	6	114	74
Greys River	5	120	84
Salt River	5	112	89
Snake above Palisades	32	125	91
Willow Creek	7	118	93
Blackfoot River	5	100	79
Portneuf River	6	114	84
Snake abv American Falls	47	122	90

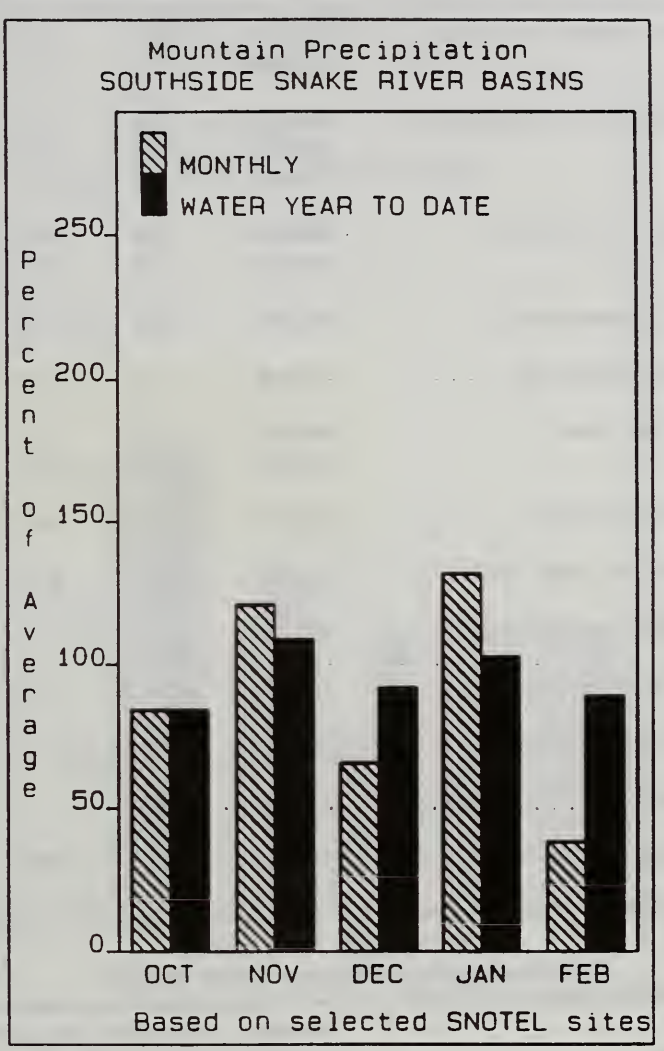
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table. The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

SOUTHSIDE SNAKE RIVER BASINS

MARCH 1, 1995





WATER SUPPLY OUTLOOK

March will be a critical precipitation month across southern Idaho. February precipitation was only 39% of average, dropping snowpack percentages 15-20 points in most basins. The Owyhee basin snowpack dropped significantly and now reports 87% of average. Currently, snowpacks range from 78% of average in the Oakley Reservoir basin to 90% in the Bruneau River basin. Warm temperatures and rain melted some of the low elevation snowpack, bringing an increase in storage to all reservoirs in the area. Owyhee Reservoir storage increased 200,000 acre-feet in February and is currently 48% of capacity. Salmon Falls and Oakley reservoirs are 14% and 19% of capacity, respectively. Streamflow forecasts call for 92% of average for Oakley Reservoir inflow and 94% of average for Salmon Falls Creek. The Surface Water Supply Index (SWSI) for these basins is near the median value which indicates the potential for tight irrigation supplies. Good spring precipitation is needed to ensure an adequate water supply for these agricultural areas. The outlook for whitewater boating looks promising for the Jarbidge and Bruneau rivers. The Owyhee River could have an early season if the warm, dry conditions persist.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - March 1, 1995

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
OAKLEY RESERVOIR Inflow (2)	MAR-JUL	18.0	25	31	90	36	43	34
	MAR-SEP	21	29	34	92	39	47	37
SALMON FALLS CK nr San Jacinto	MAR-JUN	45	65	79	92	93	113	86
	MAR-JUL	46	68	84	92	99	121	91
	MAR-SEP	52	74	90	94	106	128	96
BRUNEAU nr Hot Spring	MAR-JUL	145	189	219	93	250	290	235
	MAR-SEP	125	194	225	91	255	325	246
OWYHEE nr Gold Ck (2)	MAR-JUL	15.0	24	29	85	35	51	34
OWYHEE nr Owyhee (2)	APR-JUL	31	56	72	84	89	113	86
OWYHEE near Rome	MAR-JUL	199	265	315	58	370	459	545
	MAR-SEP	214	282	334	59	389	479	565
OWYHEE RESV INFLOW	MAR-SEP	268	341	396	67	455	549	595
SUCCOR CK nr Jordan Valley	MAR-JUL	3.5	9.3	13.3	93	17.3	23	14.3
SNAKE RIVER at King Hill (2)	APR-JUL	1070		2120	73		3160	2896
SNAKE RIVER near Murphy (2)	APR-JUL	1040		2150	72		3280	2980
SNAKE RIVER at Weiser (2)	APR-JUL	1580		3980	73		6390	5465
SNAKE RIVER at Hells Canyon Dam	APR-JUL	1960		4380	71		6800	6129
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	10200	10200	17300	80	19600	24600	21650

SOUTHSIDE SNAKE RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	77.4	14.8	14.6	29.9
SALMON FALLS	182.6	25.2	46.2	53.9
WILDHORSE RESERVOIR	71.5	20.7	34.2	33.0
OWYHEE	715.0	343.1	458.6	512.0
BROWNLEE	1419.3	1185.0	1249.8	975.0

SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - March 1, 1995

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	6	124	80
Goose-Trapper Creeks	6	121	78
Salmon Falls Creek	6	119	86
Bruneau River	8	130	90
Owyhee Basin Total	20	122	87

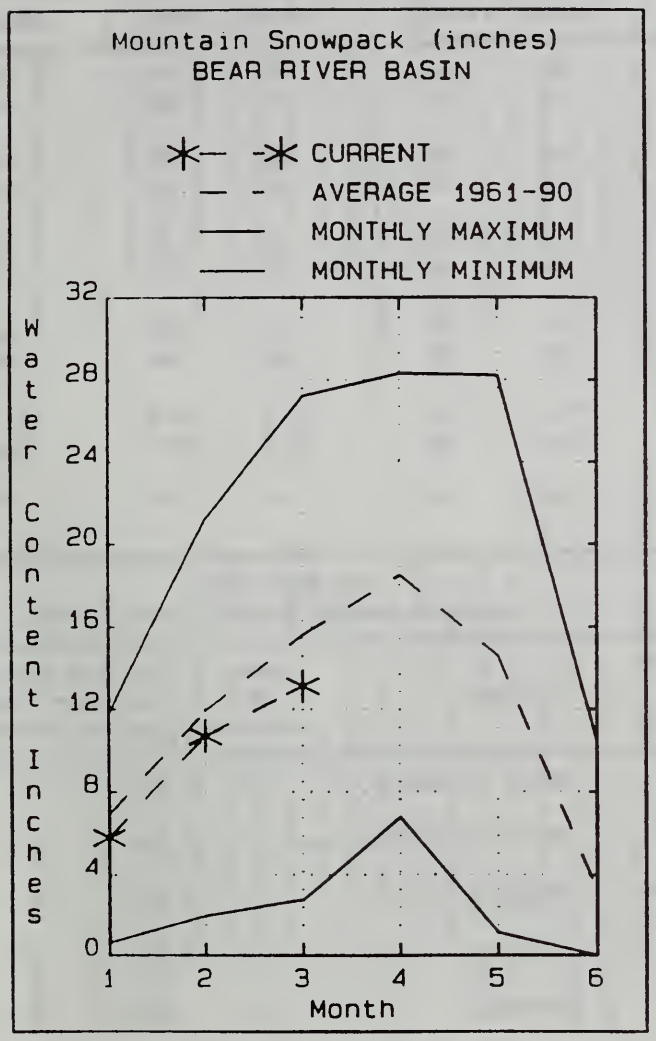
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

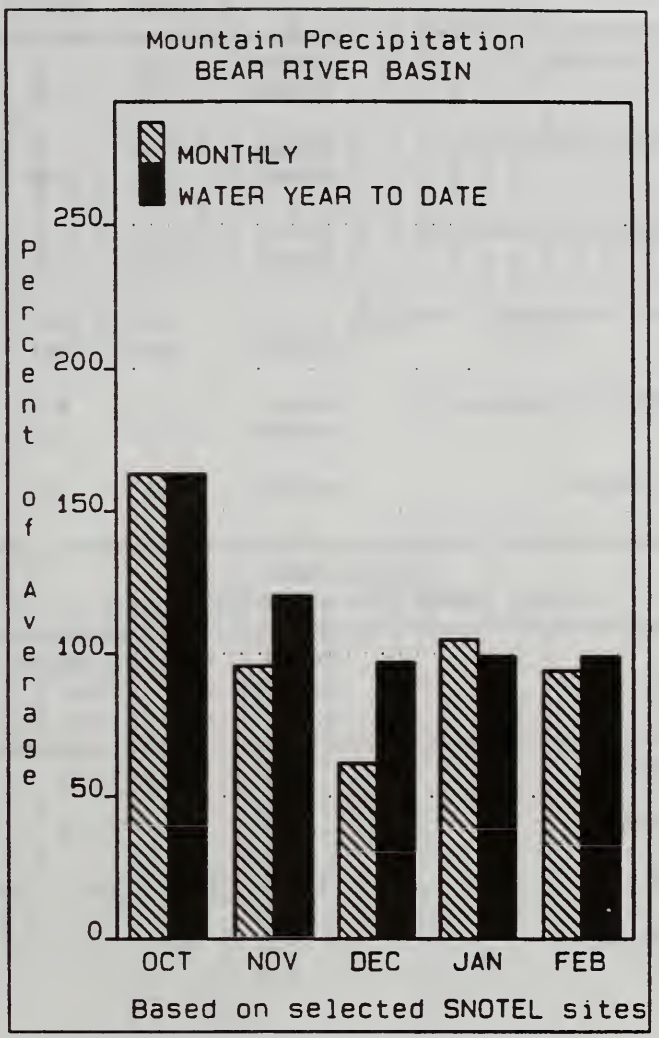
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

BEAR RIVER BASIN

MARCH 1, 1995





WATER SUPPLY OUTLOOK

February precipitation was 94% of average in the Bear River area, bringing the water year total to 99% of average. Snowpacks are currently about 90% of average throughout the basin. Reservoir storage remains critically low in Bear Lake with only 24% of capacity. Montpelier Creek Reservoir reports 25% of capacity. Streamflow forecasts call for below normal runoff in the area ranging from 80 to 90% of average. As a result of the low reservoir storage and below normal runoff, the Surface Water Supply Index (SWSI)for the Bear River is -3.8, indicating a potential for agricultural shortages. Water users should stay in contact with their irrigation district for more specific information.

BEAR RIVER BASIN
Streamflow Forecasts - March 1, 1995

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BEAR R nr Randolph, UT	APR-JUL	34	75	103	87	131	172	118
	APR-SEP	32	79	110	87	141	188	127
SMITHS FORK nr Border, WY	APR-JUL	63	78	89	87	100	115	102
	APR-SEP	71	89	101	86	113	131	118
THOMAS FK nr WY-ID State Line	APR-JUL	15.0	20	25	76	31	43	33
	APR-SEP	16.0	22	27	75	33	45	36
BEAR R blw Stewart Dam nr Montpelier	APR-JUL	146	210	250	87	290	355	288
	APR-SEP	169	240	285	87	330	400	327
MONTPELIER CK nr Montpelier (2)	APR-JUL	6.7	8.5	10.0	82	11.8	15.0	12.2
	APR-SEP	7.7	9.8	11.6	82	13.7	17.4	14.2
CUB R nr Preston	APR-JUL	33	40	44	94	49	55	47

BEAR RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
WOODRUFF NARROWS	57.3	14.0	31.0	---
WOODRUFF CREEK	4.0	2.6	3.2	---
BEAR LAKE	1421.0	336.3	539.3	992.5
MONTPELIER CREEK	4.0	1.0	2.8	1.6

BEAR RIVER BASIN
Watershed Snowpack Analysis - March 1, 1995

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
Smiths & Thomas Forks	3	131	89
Bear River ab WY-ID line	10	122	89
Montpelier Creek	2	165	89
Mink Creek	4	108	93
Cub River	3	110	95
Bear River ab ID-UT line	22	118	90
Malad River	3	104	80

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Streamflow forecasts are projections of runoff volumes that would have occurred naturally without influences from upstream reservoirs or diversions. These values are referred to as natural or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and interbasin transfers are added or subtracted from the observed (actual) streamflow volumes. The following list documents the adjustments made to each forecast point in this report.

Panhandle River Basins

KOOTENAI R AT LEONIA, ID
+ LAKE KOOCANUSA (STORAGE CHANGE)

CLARK FORK R AT WHITEHORSE RAPIDS, ID
+ HUNGRY HORSE (STORAGE CHANGE)
+ FLATHEAD LAKE (STORAGE CHANGE)
+ NOXON RAPIDS RESV (STORAGE CHANGE)

PEND OREILLE LAKE INFLOW, ID
+ PEND OREILLE R AT NEWPORT, WA
+ HUNGRY HORSE (STORAGE CHANGE)
+ FLATHEAD LAKE (STORAGE CHANGE)
+ NOXON RAPIDS (STORAGE CHANGE
+ PEND OREILLE LAKE (STORAGE CHANGE)

PRIEST R NR PRIEST R, ID
+ PRIEST LAKE (STORAGE CHANGE)

COEUR D'ALENE R AT ENAVILLE, ID - No Corrections

ST. JOE R AT CALDER, ID - No Corrections

SPOKANE R NR POST FALLS, ID
+ COEUR D'ALENE LAKE (STORAGE CHANGE)

SPOKANE R AT LONG LAKE, ID
+ COEUR D'ALENE LAKE (STORAGE CHANGE)

Clearwater River Basin

CLEARWATER R AT OROFINO, ID - No Corrections

DWORSHAK RESERVOIR INFLOW, ID
+ CLEARWATER R NR PECK, ID
+ DWORSHAK RESV (STORAGE CHANGE)
- CLEARWATER R AT OROFINO, ID

CLEARWATER R AT SPALDING, ID
+ DWORSHAK RESV (STORAGE CHANGE)

Salmon River Basin

SALMON R AT SALMON, ID - No Corrections

SALMON R AT WHITE BIRD, ID - No Corrections

Weiser, Payette, Boise River Basins

WEISER R NR WEISER, ID - No Corrections

SF PAYETTE R AT LOWMAN, ID - No Corrections

DEADWOOD RESERVOIR INFLOW, ID
+ DEADWOOD R BLW DEADWOOD RESV NR LOWMAN
+ DEADWOOD RESV (STORAGE CHANGE)

NF PAYETTE R AT CASCADE, ID
+ CASCADE RESV (STORAGE CHANGE)

NF PAYETTE R NR BANKS, ID
+ CASCADE RESV (STORAGE CHANGE)

PAYETTE R NR HORSESHOE BEND, ID
+ DEADWOOD RESV (STORAGE CHANGE)
+ CASCADE RESV (STORAGE CHANGE)

BOISE R NR TWIN SPRINGS, ID - No Corrections

SF BOISE R AT ANDERSON RANCH DAM, ID
+ ANDERSON RANCH RESV (STORAGE CHANGE)

MORES CK NR ARROWROCK DAM, ID - No Corrections

BOISE R NR BOISE, ID
+ ANDERSON RANCH RESV (STORAGE CHANGE)
+ ARROWROCK RESV (STORAGE CHANGE)
+ LUCKY PEAK RESV (STORAGE CHANGE)

Wood and Lost River Basins

BIG WOOD R AT HAILEY, ID - No Corrections

BIG WOOD R NR BELLEVUE, ID - No Corrections

CAMAS CK NR BLAINE, ID - No Corrections

BIG WOOD R BLW MAGIC DAM NR RICHFIELD, ID
+ MAGIC RESV (STORAGE CHANGE)

LITTLE WOOD R NR CAREY, ID
+ LITTLE WOOD RESV (STORAGE CHANGE)

BIG LOST R AT HOWELL RANCH NR CHILLY, ID - No Corrections

BIG LOST R BLW MACKAY RESV NR MACKAY, ID
+ MACKAY RESV (STORAGE CHANGE)

LITTLE LOST R BLW WET CK NR HOWE, ID - No Corrections

Upper Snake River Basin

HENRYS FORK NR ASHTON, ID
+ HENRYS LAKE (STORAGE CHANGE)
+ ISLAND PARK RESV (STORAGE CHANGE)

HENRYS FORK NR REXBURG, ID
+ HENRYS LAKE (STORAGE CHANGE)
+ ISLAND PARK RESV (STORAGE CHANGE)
+ DIV FM HENRYS FK BTW ASHTON & ST. ANTHONY, ID
+ DIV FM HENRYS FK BTW ST. ANTHONY & REXBURG, ID
+ GRASSY LAKE (STORAGE CHANGE)

FALLS R NR SQUIRREL, ID
+ GRASSY LAKE (STORAGE CHANGE)

TETON R ABV SO LEIGH CK NR DRIGGS, ID - No Corrections

TETON R NR ST. ANTHONY, ID
- CROSS CUT CANAL
+ SUM OF DIVERSIONS ABV GAGE

SNAKE R NR MORAN, WY
+ JACKSON LAKE (STORAGE CHANGE)

PACIFIC CK AT MORAN, WY - No Corrections

SNAKE R ABV PALISADES RESV NR ALPINE, WY
+ JACKSON LAKE (STORAGE CHANGE)

GREYS R ABV PALISADES RESV, WY - No Corrections

SALT R ABV RESV NR ETNA, WY - No Corrections

PALISADES RESERVOIR INFLOW, ID
+ SNAKE R NR IRWIN, ID
+ PALISADES RESV (STORAGE CHANGE)
+ JACKSON LAKE (STORAGE CHANGE)

SNAKE R NR HEISE, ID
+ PALISADES RESV (STORAGE CHANGE)
+ JACKSON LAKE (STORAGE CHANGE)

SNAKE R NR BLACKFOOT, ID
+ PALISADES RESV (STORAGE CHANGE)
+ JACKSON LAKE (STORAGE CHANGE)
+ DIV FM SNAKE R BTW HEISE AND SHELLY GAGES
+ DIV FM SNAKE R BTW SHELLY AND BLACKFT, ID

PORTNEUF R AT TOPAZ, ID - No Corrections

AMERICAN FALLS RESERVOIR INFLOW, ID
+ SNAKE R AT NEELEY, ID
+ AMERICAN FALLS (STORAGE CHANGE)
+ PALISADES RESV (STORAGE CHANGE)
+ JACKSON LAKE (STORAGE CHANGE)

Southside Snake River Basins

OAKLEY RESERVOIR INFLOW, ID
+ GOOSE CK ABV TRAPPER CK NR OAKLEY, ID
+ TRAPPER CK NR OAKLEY, ID
SALMON FALLS CK NR SAN JACINTO, NV - No Corrections
BRUNEAU R NR HOT SPRINGS, ID - No Corrections
OWYHEE R NR GOLD CK, NV
+ WILDHORSE RESV (STORAGE CHANGE)
OWYHEE R NR ROME, OR
+ WILDHORSE RESV (STORAGE CHANGE)
+ JORDAN VALLEY RESV (STORAGE CHANGE)
OWYHEE RESERVOIR INFLOW, OR
+ OWYHEE R BLW OWYHEE DAM, OR
+ OWYHEE RESV (STORAGE CHANGE)
+ DIV TO NORTH AND SOUTH CANALS
SUCCOR CK NR JORDAN VALLEY, OR - No Corrections
SNAKE R - KING HILL, ID - No Corrections
SNAKE R NR MURPHY, ID - No Corrections
SNAKE R AT WEISER, ID - No Corrections
SNAKE R AT HELLS CANYON DAM, ID
+ BROWNLEE RESV (STORAGE CHANGE)

Bear River Basin

BEAR R NR RANDOLPH, UT
+ SULPHUR CK RESV (STORAGE CHANGE)
+ CHAPMAN CANAL DIVERSION
+ WOODRUFF NARROWS RESV (STORAGE CHANGE)
SMITHS FORK NR BORDER, WY - No Corrections
THOMAS FORK NR WY-ID STATELINE - No Corrections
BEAR R BLW STEWART DAM, ID
+ SULPHUR CK RESV (STORAGE CHANGE)
+ CHAPMAN CANAL DIVERSION
+ WOODRUFF NARROWS RESV (STORAGE CHANGE)
+ TOTAL OF 12 CANALS
+ WESTFORK CANAL
+ DINGLE INLET CANAL
+ RAINBOW INLET CANAL
MONTPELIER CK NR MONTPELIER, ID
+ MONTPELIER CK RESV (STORAGE CHANGE)
CUB R NR PRESTON, ID - No Corrections

RESERVOIR CAPACITY DEFINITIONS Different agencies use various definitions when reporting reservoir capacity and contents Reservoir storage terms include dead, inactive, active, and surcharge storage The table below lists these volumes for each reservoir in this report, and defines the storage volumes that NRCS uses when reporting capacity and current reservoir storage In most cases, NRCS reports usable storage, which includes active and inactive storage

BASIN/ RESERVOIR	DEAD STORAGE	INACTIVE STORAGE	ACTIVE STORAGE	SURCHARGE STORAGE	NRCS CAPACITY	NRCS FIGURES INCLUDE
PANHANDLE REGION						
HUNGRY HORSE	39.73	--	3451 00	--	3451.0	ACTIVE
FLATHEAD LAKE	Unknown	--	1791 00	--	1971.0	ACTIVE
NOXON RAPIDS	Unknown	--	335.00	--	335.0	ACTIVE
PEND OREILLE	406.20	112.40	1042 70	--	1561.3	DEAD + INACTIVE + ACTIVE
COEUR D'ALENE	--	13.50	225.00	--	238.5	INACTIVE + ACTIVE
PRIEST LAKE	20.00	28 00	71 30	--	119.3	DEAD + INACTIVE + ACTIVE
CLEARWATER BASIN						
DWORSHAK	--	1452.00	2007 00	--	3459 0	INACTIVE + ACTIVE
WEISER/BOISE/PAYETTE BASINS						
MANN CREEK	1.61	0 24	11 10		11.1	ACTIVE
CASCADE	--	50.00	653 20	--	703.2	INACTIVE + ACTIVE
DEADWOOD	1.50	--	161 90	--	161.9	ACTIVE
ANDERSON RANCH	29 00	41 00	423 18	--	464.2	INACTIVE + ACTIVE
ARROWROCK	--	--	286 60	--	286.6	ACTIVE
LUCKY PEAK	--	28.80	264 40	13.80	293 2	INACTIVE + ACTIVE
LAKE LOWELL	--	8 00	169 10	--	169.1	ACTIVE
WOOD/LOST BASINS						
MAGIC	--	--	191 50	--	191.5	ACTIVE
LITTLE WOOD	--	--	30 00	--	30.0	ACTIVE
MACKAY	0 13	--	44 37	-	44.4	ACTIVE
UPPER SNAKE BASIN						
HENRYS LAKE	--	--	90 40	--	90.4	ACTIVE
ISLAND PARK	0.40	--	127 30	7.90	135.2	ACTIVE + SURCHARGE
GRASSY LAKE	--	--	15 18	--	15.2	ACTIVE
JACKSON LAKE	--	-	847 00	--	847.0	ACTIVE
PALISADES	44.10	155.50	1200 00	--	1400.0	DEAD + INACTIVE + ACTIVE
RIRIE	4.00	6 00	80 54	10.00	80 5	ACTIVE
BLACKFOOT	--	--	348 73	--	348 7	ACTIVE
AMERICAN FALLS	--	--	1672 60	--	1672.6	ACTIVE
SOUTHSIDE SNAKE BASINS						
OAKLEY	--	--	77 40	-	77.4	ACTIVE
SALMON FALLS	48.00	-	182 65	-	182.6	ACTIVE
WILDHORSE	--	-	71 50	-	71 5	ACTIVE
OWYHEE	406.83	--	715 00	--	715 0	ACTIVE
BROWNLEE	0.45	444 00	975 30	--	1419.3	INACTIVE + ACTIVE
BEAR RIVER BASIN						
WOODRUFF NARROWS	--	1 50	57 30	--	57.3	ACTIVE
WOODRUFF CREEK	--	4 00	4 00	--	4 0	ACTIVE
BEAR LAKE	--		1421 00	-	1421 0	ACTIVE
MONTPELIER CREEK	0 21		3 84	--	4 0	DEAD + ACTIVE

Interpreting Streamflow Forecasts

Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

Most Probable (50 Percent Chance of Exceeding) Forecast. This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast; it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

To Decrease the Chance of Having Too Little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

70 Percent Chance of Exceeding Forecast. There is a 70 percent chance that the streamflow volume will exceed this forecast value. There is a 30 percent chance the streamflow volume will be less than this forecast value.

90 Percent Chance of Exceeding Forecast. There is a 90 percent chance that the streamflow volume will exceed this forecast value. There is a 10 percent chance the streamflow volume will be less than this forecast value.

To Decrease the Chance of Having Too Much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

30 Percent Chance of Exceeding Forecast. There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

10 Percent Chance of Exceeding Forecast. There is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

Using the forecasts - an example

Using the Most Probable Forecast. Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Deeth between March 1 and July 31.

Using the Higher Exceedance Forecasts. If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are available from the National Weather Service every two weeks), or if they are operating at a level where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

Using the Lower Exceedance Forecasts. If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

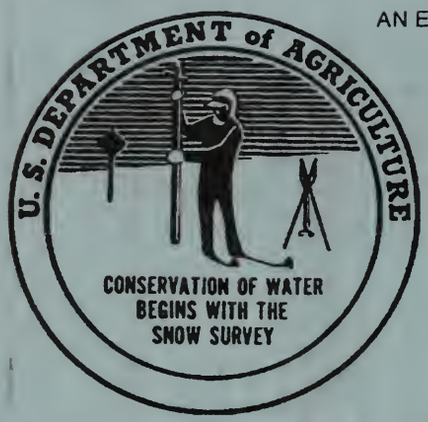
In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

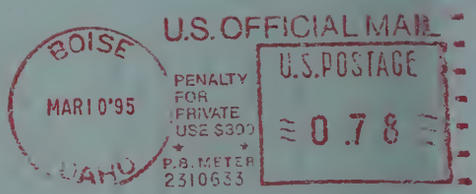
UPPER HUMBOLDT RIVER BASIN

FORECAST POINT	FORECAST PERIOD	STREAMFLOW FORECASTS <-----DRIER-----FUTURE CONDITIONS-----WETTER-----> Chance of Exceeding 90% (1000AF)	70% (1000AF)	50% (Most Probable (1000AF)	(% AVG)	30% (1000AF)	10% (1000AF)	25 YR (1000AF)
MARY'S RIVER	MAR-JUL	5.0	20.0	36	77	52	76	47
nr Deeth	APR-JUL	8.0	17.0	31	74	45	67	42
LAMOILLE CREEK	MAR-JUL	6.0	16.0	24	79	32	43	31
nr Lamoille	APR-JUL	4.0	15.0	22	75	30	41	30
NF HUMBOLDT RIVER at Devils Gate	MAR-JUL	6.0	12.0	43	73	74	121	59

For more information concerning streamflow forecasting ask your local NRCS field office for a copy of "A Field Office Guide for Interpreting Streamflow Forecasts".

AN EQUAL OPPORTUNITY EMPLOYER





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In addition to basin outlook reports, a Water Supply Forecast for the Western United States is published by the Natural Resources Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Natural Resources Conservation Service, West National Technical Center, 101 SW Main Street, Suite 1700, Portland, OR 97204-3225.